

## IN THE CLAIMS

1- 13. (Canceled)

14. (Currently Amended) The process according to Claim ~~43~~ 29 for preparing compounds of the formula (I) wherein for olefins of the formula (II) the substituents R<sup>1</sup> to R<sup>4</sup> are each, independently of one another, hydrogen, alkyl, CN, COOH, COO-alkyl, COO-aryl, CO-alkyl, CO-aryl, O-alkyl, O-aryl, N-alkyl<sub>2</sub>, aryl, fluorine, chlorine, bromine, iodine, CHO, CF<sub>3</sub>, NHCO-alkyl, CONH<sub>2</sub>, CONH-alkyl, or NHCOO-alkyl.

15. (Currently Amended) The process according to Claim ~~43~~ 29 wherein diols of the formula (I) in which R<sup>1</sup> to R<sup>4</sup> are each, independently of one another, hydrogen, alkyl, CN, COOH, COO-alkyl, CO-alkyl, CO-aryl, O-alkyl, O-aryl, aryl, fluorine, chlorine, bromine, CHO, or NHCO-alkyl are prepared.

16. (Currently Amended) The process according to Claim ~~43~~ 29 wherein the oxidant is ~~oxygen or~~ a gas mixture comprising at least 15% by volume of oxygen.

17. (Canceled)

18. (Currently Amended) The process according to Claim ~~43~~ 29 wherein the reaction proceeds at a temperature of from 20 to 200°C and a pressure of up to 200 bar.

19. (Canceled)

20. (Previously Presented) ~~A~~ The process according to Claim ~~40~~ 29 wherein the amine is a tertiary amine.

21. (Previously Presented) ~~A~~ The process according to Claim ~~40~~ 29 wherein the amine is a bicyclic amine of the quinuclidine type.

22. (Currently Amended) The process according to Claim ~~43~~ 29 wherein a sulfonamide is added as a cocatalyst.

23. (Currently Amended) The process according to Claim 22 wherein the sulfonamide cocatalyst is a methylsulfonamide or ~~and/or~~ a carboxamide.

24. (Currently Amended) The process according to Claim ~~43~~ 29 wherein the osmium compounds OsO<sub>4</sub>, K<sub>2</sub>Os<sub>2</sub>(OH)<sub>4</sub>, Na<sub>2</sub>Os<sub>2</sub>(OH)<sub>4</sub>, Os<sub>3</sub>(CO)<sub>12</sub>, OsCl<sub>3</sub>,

$\text{H}_2\text{OsCl}_6$ ,  $[\text{CF}_3\text{SO}_3\text{Os}(\text{NH}_3)_5](\text{O}_3\text{SCF}_3)_2$ ,  $\text{OsO}_4$  on vinylpyridine, or  $\text{Bu}^t\text{NOsO}_3$  are used as catalysts or ~~and/or~~ catalyst precursors.

25. (Currently Amended) The process according to Claim ~~43~~ 29 wherein the manganese compounds  $\text{MnO}_2$ ,  $\text{KMnO}_4$ ,  $\text{Ca}(\text{MnO}_4)_2$ ,  $\text{MnCl}_3$ , or  $\text{Mn}(\text{OAc})_3$  are used as catalysts or ~~and/or~~ catalyst precursors.

26. (Currently Amended) The process according to Claim ~~43~~ 29 wherein the ruthenium compounds  $\text{RuCl}_3$ ,  $\text{RuO}_4$ , or  $\text{RuO}_2$  are used as catalysts or ~~and/or~~ catalyst precursors.

27. (Currently Amended) The process according to Claim ~~43~~ 29 wherein the catalyst is used in amounts of from 0.2 to 0.00001 equivalents, based on the olefin.

28. (Currently Amended) The process according to Claim ~~43~~ 29 wherein the ratio of amine to metal is from 0.01:1 to 1 000:1.

29. (New) A process for the dihydroxylation of olefins using transition metal catalysts to obtain monofunctional, bifunctional, and/or polyfunctional 1,2-diols of the formula (I)



where

$\text{R}^1$  to  $\text{R}^4$  are each, independently of one another, hydrogen, alkyl, CN, COOH, COO-alkyl, COO-aryl, CO-alkyl, CO-aryl, O-alkyl, O-aryl, O-CO-aryl, O-CO-alkyl, OCOO-alkyl, N-alkyl<sub>2</sub>, NH-alkyl, N-aryl<sub>2</sub>, NH-aryl, NO, NO<sub>2</sub>, NOH, aryl, fluorine, chlorine, bromine, iodine, Si-alkyl<sub>3</sub>, CHO, SO<sub>3</sub>H, SO<sub>3</sub>-alkyl, SO<sub>2</sub>-alkyl, SO-alkyl, CF<sub>3</sub>, NHCO-alkyl, CONH<sub>2</sub>, CONH-alkyl, NHCOH, NHCOO-alkyl, CHCHCO<sub>2</sub>-alkyl, CHCHCO<sub>2</sub>H, PO-(aryl)<sub>2</sub>, PO(alkyl)<sub>2</sub>, PO<sub>3</sub>H<sub>2</sub>, or PO(O-alkyl)<sub>2</sub>, where alkyl is a linear, branched, or cyclic aliphatic organic group having from 1 to 18 carbon atoms and aryl is a 5-, 6-, or 7-membered aromatic ring containing from 4 to 14 carbon atoms and from 0 to 3 heteroatoms and is optionally fused, and where the alkyl or the aryl group optionally bears up to six substituents selected independently from the group consisting of hydrogen, alkyl, O-alkyl, OCO-alkyl, O-aryl, aryl, fluorine,

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chlorine, bromine, iodine, OH, NO<sub>2</sub>, NO, Si-alkyl<sub>3</sub>, CN, COOH, CHO, SO<sub>3</sub>H, NH<sub>2</sub>, NH-alkyl, N-alkyl<sub>2</sub>, PO-alkyl<sub>2</sub>, SO<sub>2</sub>-alkyl, SO-alkyl, CF<sub>3</sub>, NHCO-alkyl, COO-alkyl, CONH<sub>2</sub>, CO-alkyl, NHCOH, NHCOO-alkyl, CO-aryl, COO-aryl, PO-aryl<sub>2</sub>, PO<sub>3</sub>H<sub>2</sub>, PO(O-alkyl)<sub>2</sub>, and SO<sub>3</sub>-alkyl, where alkyl and aryl are as defined above,

comprising reacting an olefin of the formula (II)



where R<sup>1</sup> to R<sup>4</sup> are defined as for formula (I),

with an oxidant comprising molecular oxygen or a gas mixture comprising molecular oxygen in the presence of an osmium, ruthenium, or manganese compound in water or a water-containing solvent mixture at a pH of from 7.5 to 13; and adding an amine to achieve improved selectivity.